

## WHAT IS CLAIMED IS

least one group of ports formed therein alignable with said leading portions of said detonation passages as said cylindrical

extending substantially rad













(b) a compressor positioned downstream of and in flow communication with said bellmouth, said compressor including a first compressor blade row and a second blade row connected to a drive shaft and interdigitated with said first compressor blade row;

5 (c) a load connected to said drive shaft; and,

(d) a pulse detonation system for powering said drive shaft, said pulse detonation system further comprising:

10 (1) a rotatable cylindrical member having a forward surface, an aft surface, and an outer circumferential surface, said cylindrical member including at least one detonation stage having a plurality of detonation passages disposed therein and being connected to said drive shaft, each said detonation passage further comprising:

15 (a) a leading portion positioned adjacent said forward surface of said cylindrical member, said leading portion having a centerline therethrough oriented at a designated angle to an axis extending substantially parallel to said longitudinal centerline axis within a specified plane;

20 (b) a trailing portion positioned adjacent said aft surface of said cylindrical member, said trailing portion having a centerline therethrough oriented at a designated angle to said axis within said specified plane; and,

(c) a middle portion connecting said leading and trailing portions, said middle portion having a centerline

therethrough with a substantially constantly changing slope  
in said specified plane;

(2) a stator configured in spaced arrangement to said forward surface  
of said cylindrical member and a portion of said shaft, said stator  
including at least one group of ports formed therein alignable with  
said leading portion of said detonation passages as said cylindrical  
member rotates;

wherein detonation cycles are performed in said detonation passages so that  
combustion gases interface therewith to create a torque which causes said cylindrical  
member to rotate and power said compressor and said load.